

FN3148 Load Cell with mechanical stops



- Ranges from 10 to 2 000 N [2 to 400 lbf]
- S-Beam sensor with mechanical stops in tension and compression
- Combined linearity & hysteresis < 0.05% F.S.
- High level output with integrated amplifier

DESCRIPTION

The **FN3148** high precision load cell features accuracy of 0.05% F.S. It is available in standard ranges from 0-10 N to 0-2000 N. Integrated mechanical stops protect against accidental overloads in tension and compression. For high-level output a model with integrated amplifier is available.

For lower ranges, another sensor, model **FN3280**, can measure 0-1 to 0-5N [0.2 to 1 lbf].

With many years of experience as a designer and manufacturer of sensors, Measurement Specialties, Inc. often works with customers to design or customize sensors for specific uses and testing environments. To meet your needs we also offer complete turnkey systems. The matched components (sensor, power, amplifier and digital display) are formatted, calibrated and ready for immediate use.

FEATURES

- High accuracy
- Tension and Compression
- Integrated Mechanical Stops
- Integrated Amplifier optional
- Cable or connector output

APPLICATIONS

- Process control equipment
- Medical Instruments
- Weighing
- Laboratory and Research
- Calibration test benches

STANDARD RANGES

Ranges in N	10	50	100	200	500	1K	2K
Ranges in lbf	2	10	20	40	100	200	400
Stiffness in N/m	2.2×10^4	1.8×10^5	3.7×10^5	8.3×10^5	2.2×10^6	4.5×10^6	9.5×10^6
Stiffness in lbf/ft	1.5×10^3	1.2×10^4	2.5×10^4	5.7×10^4	1.5×10^5	3.1×10^5	6.5×10^5

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PERFORMANCE SPECIFICATIONS

All values are typical at temperature 20±1° C

PARAMETERS	
Operating Temperature Range (OTR)	-20 to 80° C [-4 to 176° F]
Compensated Temperature Range (CTR)	0 to 60° C [32 to 140° F]
Zero Shift in CTR	<0.5% F.S. / 50° C [/100° F]
Sensitivity Shift in CTR	<0.5 % of reading / 50° C [/100° F]
Range (F.S.)	0-10 to 0-2000 N [0-2 lbf to 0-400 lbf]
Over-Range	
Without Damage	5 to 100 x F.S. (see table)
Accuracy	
Combined non-linearity & hysteresis	≤±0.05% F.S.

Electrical Characteristics

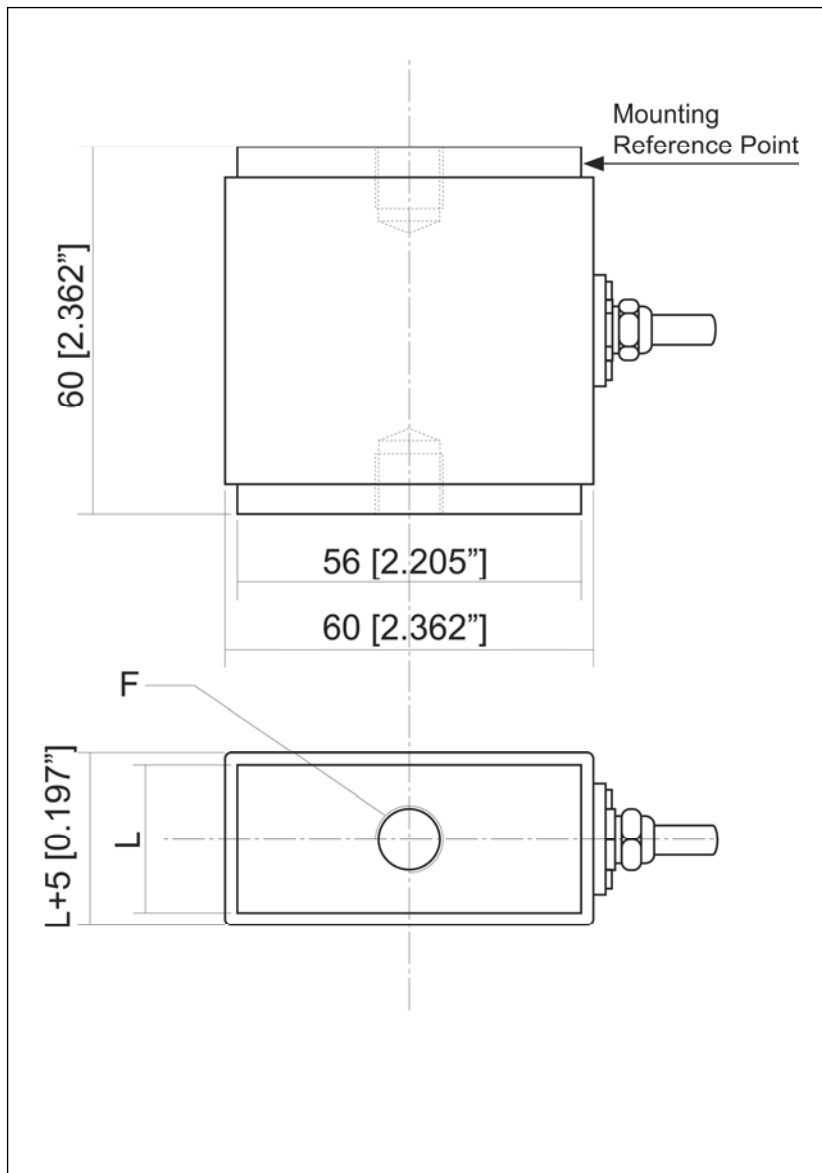
Model	FN3148	FN3148-A1	FN3148-A2
Supply Voltage	10Vdc	10 to 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output ³	±2mV/V typical	±2V ±5% F.S.	±5V ±5% F.S.
Zero Offset ³	±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	350 to 700Ω	<50mA	50mA
Output Impedance	350 to 700Ω	1 kΩ ⁴	1 kΩ ⁴
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

Notes

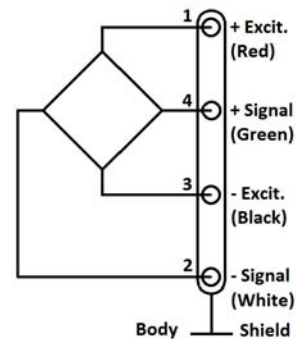
1. Electrical Termination: Cable gland termination, 2m cable length standard
2. Materials: Body in aluminium alloy and cover in stainless steel
3. Other signal output on request
4. Output impedance < 100Ω on request
5. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1

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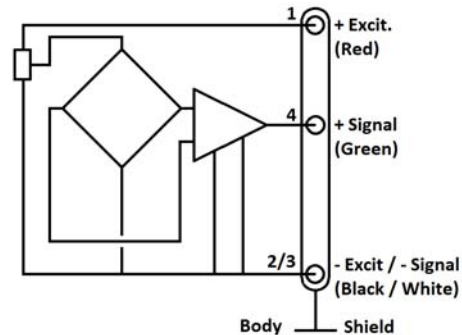
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



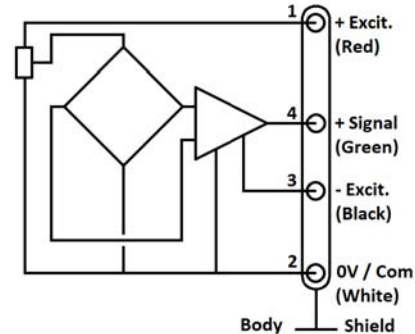
Wiring Schematic



Version -A1



Version -A2



Dimensions in mm [inch]

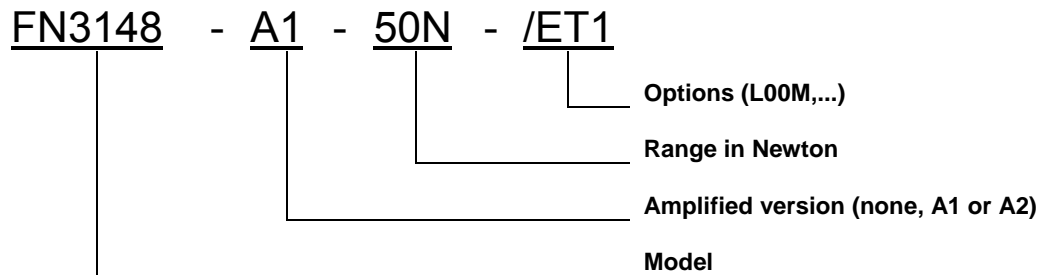
Range in N [in lbf]	10 [2]	50 [10]	100 [20]	200 [40]	500 [100]	1K [200]	2K [400]
F (Thread)	M6			M10			
L	20 [0.79"]	25 [0.98"]					
Over-range (compression)	20 kN [4 klbf]						
Over-range (tension)	1 kN [200 lbf]			2 kN [400 lbf]	5 kN [1 klbf]	10 kN [2klbf]	
Stiffness in N/m [in lbf/ft]	2.2x10 ⁴ [1.5x10 ³]	1.8x10 ⁵ [1.2x10 ⁴]	3.7x10 ⁵ [2.5x10 ⁴]	8.3x10 ⁵ [5.7x10 ⁴]	2.2x10 ⁶ [1.5x10 ⁵]	4.5x10 ⁶ [3.1x10 ⁵]	9.5x10 ⁶ [6.5x10 ⁵]

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OPTIONS

A1 : Amplified Tension output with unipolar power supply
A2 : Amplified Tension output with bipolar power supply
ET1 : CTR -20 to 100° C [-4 to 212° F] OTR = CTR
ET2 : CTR -40 to 120° C [-40 to 248° F] OTR = CTR
SC : Connector output (Jaeger 4b mini)
L00M : special cable length, replace "00" with total length in meters

ORDERING INFORMATION



RECOMMENDED ACCESSORIES

ER : Rod Ends

联系方式



深圳市亿为测控电子有限公司
Shenzhen Bill-Well Measurement & Control Electronics Co., Ltd.

广东省深圳市南山区创业路怡海广场东座2407 邮编：518000
电话：+86 755 2641 9890 传真：+86 755 2641 9680
电子邮箱：sales@bill-well.com